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MUSCULOSKELETAL DYSFUNCTION AMONGST CRICKET UMPIRES: A PREVALENCE STUDY

Dr. Vijaya Krishnan [1] | Dr. Mahadik Shruti [2]

[1] Lecturer, MGM College of Physiotherapy, Navi Mumbai, India.
[2] BPTh, MGM College of Physiotherapy, Navi Mumbai, India.

ABSTRACT

Background: "Cricket"- one of the most popular bat and ball game. The game of cricket is monitored by Field Umpires. An Umpire is the unbiased person who has the authority to make decisions about events in the cricket field. This study is aimed at identifying the musculoskeletal dysfunction amongst Umpires to facilitate prevention, evaluation, diagnosis, and treatment of sports-related injuries.

Methods: A total of 120 Cricket Umpires participated from various Cricket Academies across Mumbai. Each of the participating Umpires were required to fill a semi-structured self made Questionnaire which recorded the socio-demographic data, umpiring qualifications, experiences, pain profile and musculoskeletal dysfunctions

Results: Among the umpires participating, mean age was 41.85 + 10.54 and males were 91%. 47.5% of them were umpiring for up to 6 to 10 years with 31.66% officiating Zonal matches. The region of Low back was troublesome for 32.5% Umpires, followed by Ankle 28.33% and Knee 13.33%.

Discussion: Umpiring professionally requires immense hard work and patience. Most of the low back pain can be explained by the prolonged standing in the cricket field. The lower kinetic chain dysfunctions were reported more often in officials presiding over athletic events.

Conclusion: The most prevalent pain region was the Low Back. Umpires should be placed under closer scrutiny for evaluating various medical, psychological and orthopedic problems on account of their job demands. Females should be encouraged more to become Umpires.

KEYWORDS: Cricket, Umpires, musculoskeletal dysfunction, work profile, low back pain.

INTRODUCTION:

"Cricket"- one of the most popular bat and ball game, is played between two teams of eleven players each on a rectangular pitch in the middle of a cricket field with wickets as a target on both the ends. Like any other sport, the game of cricket is monitored by Field Umpires. An Umpire is the unbiased person who has the authority to make decisions about events in the cricket field according to the Laws of Cricket. Cricket matches require two Umpires on the field- one at the end the ball is delivered (Bowler's End) and the other directly opposite the batsman facing the ball (Square Leg). Many a times there are more than two Umpires, like four for Test Matches- two on field, third wth video access and a fourth looking after the match balls [1].

To become an umpire, you have to qualify theory exams conducted by state sports bodies like the Delhi and District Cricket Association (DDCA). Once you qualify, you become eligible for the exams conducted by the Board of Control for Cricket in India (BCCI), and your state cricket association will endorse your candidature. You have to qualify the theory and practical exams conducted from time to time by state sports bodies. You then become eligible for the exams conducted by the Board of Control for Cricket in India (BCCI) at two levels -one and two. After clearing the second level, you make it to the BCCI panel and can umpire at the highest level. After your case is endorsed by the BCCI for the International Cricket Council (ICC), you can join the race to be an international umpire.

But until you pass these exams, you must grab whatever opportunity comes your way to umpire - corporate match, domestic or club level.[2]

In Cricket too like all the other major sports, a great deal of attention is paid to the medical and orthopedic history of the athletes. Sports related injuries in athletes have been extensively examined in the medical literature. Special attention is given to prevention, evaluation, diagnosis and treatment of the players. When it comes to information published regarding the medical care of the Umpires, officials and referees there is paucity. Their job demands, both physical and psychological, expose them to an exclusive assemblage of medical, psychological and orthopedic problems. Similarly, many other dynamics like age, fitness levels, disease risk factors etc. require a closer scrutiny for the officials than the athletes who share the field with them. [3]

This study is an attempt to emphasize the importance of a thorough pre participation evaluation for each Umpire presiding over the game of Cricket to identify the risk factors and the injury threat. In our study we aimed to address the question Are cricket umpires as fit as the athletes with respect to the musculoskeletal system?

METHODOLOGY:

A total of 120 Cricket Umpires participated in the study who were randomly selected from the various Cricket Academies across Mumbai for the study purpose. Prior to commencement of the study, an institutional ethical approval was obtained. Each participant was required to provide a written informed consent. The participants included in the study were within the age group of 24 to 65 years of age, professionally certified as an Umpire by the Mumbai Cricket Association and with a minimum experience of 2 years. The Umpires who were not on field since the past year (non-active umpires), who have been found to violate the Laws of Cricket and those who were de-barred from the Mumbai Cricket Association were excluded from the study.

Each of the participating Umpires were required to fill a semi-structured self made Questionnaire and pain data was recorded through Numerical Rating Scale. The five-paged questionnaire was designed to include the Umpire's characteristics such as the socio-demographic data, umpiring qualifications, experiences, pain profile and musculoskeletal dysfunctions. It was sent for face validity to three experts in the field of Physiotherapy and also to a former umpire who retired recently. Upon receiving their comments the questionnaire was re-drafted and circulated amongst the participating Umpires. Each one was instructed and explained about the questionnaire and was given sufficient time to fill in their remarks. The Umpires were explicitly informed that their data will be kept confidential and used only for scientific purposes but there is still a possibility that some of them might have thought their answers can influence their chances of selection and could have undermined their problems. These were then collected, tabulated and analyzed using descriptive statistics.

RESULTS:

The aim of this study was to determine the prevalence of musculoskeletal dysfunction in Cricket Umpires

Table 1: Demographic data

Sr. No.	Factor	Category
1	Gender n (%)	Males - 109 (91%)
		Females – 11 (9)
2	Age n Mean (SD)	120
		41.85 (+ 10.54)

Table 2: History of Umpiring

Sr. No.	Factor	Category	Respondents (n)	Percentage (%)
1	Years of Umpiring experience	0 to 5	38	31.66
		6 to 10	57	47.5
		11 to 15	10	8.33
		16 to 20	6	5
		21 to 25	3	2.5
		26 to 30	6	5
2	Level of Play	Zonal	38	31.66
		District	11	9.16
		State	54	45
		Zonal and State	10	8.33
		District and State	2	1.66
		International	1	0.83
		All Levels	4	3.33
3	Type of Match	T20	8	6.6
		ODI	10	8.33
		Test Match	30	25
		ODI and Test Match	23	19.16
		T20 and ODI	21	17.5
		All	28	23.33
4	Hours on Field	0 to 4	8	6.66
		5 to 8	58	48.33
		9 to 12	54	45
5	Matches per week	1 to 2	87	72.5
		3 to 4	32	26.66
		5 to 6	1	0.83

Table 3: Evaluation of Musculoskeletal Pain and Dysfunction

Sr. No.	Factor	Category	Respondents (n)	Percentage (%)
1	Pain site	Neck	6	4.87
		Shoulder	1	0.83
		Upper Back	1	0.83
		Low Back	39	32.5
		Wrist and Hand	1	0.83
		Hip, Thigh and Groin	16	13.33
		Knee	21	17.5
		Ankle	34	28.33
		Calf and Feet	1	0.83
2	Pain Intensity	0	0	0
		1	3	2.5
		2	14	11.66
		3	28	23.33
		4	31	25.83
		5	24	20
		6	10	8.33
		7	7	5.83
		8	0	0
		9	3	2.5
		10	0	0
3	Type of Pain	Dull Aching	57	47.5
		Sharp shooting	11	9.16
		Tingling	1	0.83
		Numbness	1	0.83
		Throbbing	7	5.83

DISCUSSION:

Umpiring professionally requires immense hard work and patience. One has to go through various stages before being eligible to officiate any Cricket match series. After local matches, the state cricket association endorses the candidate's name to the Board of Control for Cricket in India (BCCI) for further examinations (written, practical and medical) for recognition as a BCCI Umpire.

Role of the Umpires: As defined earlier, Umpire is an unbiased authority who decides on events happening on the field in accordance to the Laws of Cricket. They also ensure that the players and the matches happening follow the rules of the game. The categories they officiate are One Day Matches, Twenty-Twenty matches, Test cricket matches and Premier League matches. Apart from these they also occasionally render their services to Gully Cricket played in the streets. This profession like many others is currently dominated by male as there are very few female umpires recorded.

Position and Decision: There are generally two Umpires who monitor a cricket match. During the match, when a ball is in play, the bowler's end umpire stands at the non-striker's end behind the stumps providing him a straight vision down the pitch. The other umpire at the striker's end observes from a spot that overlooks the pitch from a different angle. Umpires make tough decisions like illegal balls by the bowler, batsman status: whether safe or out, the runs taken so on and so forth. For these decisions to be accurate the position of the Umpire on the field is crucial.

Decisions taken by the Umpires are conveyed to both the teams either by gesticulating with the different hand gestures or by calling out really loud. 5

Characteristics of Umpires:6

- **Physical and Psychological Fitness:** Umpires require very good and clear eyesight and also acute hearing. Apart from these they also needs to withstand the strain of long hours of play in the field. Stamina and concentration are of utmost importance. It is upto the umpire to keep moving and out of the way of both players and the cricket ball. They are also required to make multiple hand gestures and signals to convey their decisions to players. They need to remain calm, neutral and cope with the players aggressive attitudes when under pressure.

- **Match performance:** Umpires have to ensure, monitor and report on the match and are responsible for maintaining the code of conduct. Their role extends to checking the field conditions, ground staff, match delays etc. they are also responsible for the toss conducted prior to starting of the match. They are expected to be up to date with each of the match playing condidions and the Laws.

- **Job profile:** Apart from umpiring a most of the participants pursued day jobs to supplement their financial requirements. Most of them worked for five to ten hours a day with maximum having computer work, managerial or desk jobs.

- **Umpire Rotines:** The Umpires participating in the study were having field experience between five to ten years to others having 25 to 30 years. They officiated matches at different levels throughout Mumbai- such as State, Zonal and District, and also international matches. They were required to provide decisions on all types of matches- Test match, ODI and T20 each of which last for different durations lasting anywhere between four to twelve hours. They officiated at least 30 matches in a year and at least one to two matches per week. Umpires were never switched between matches and the same person continued for the entire duration of the match unless there is an event or emergency. Being with players, Umpires to have acsess to a wide variety of personal fitness traing equipments and regimens. A large majority of them never enter the field without proper warm up exercises which generally include free exercises.

- **Musculoskeletal Dysfunctions:** Our study reported pain profiles maximum in the past one year with a frequency of pain at least once or few times daily. Many of them were reporting pain currently and especially during or after the match which was found to come in way while performing their umpiring duties. The regions painful were analysed to be the lower kinetic chain in the order of lowback, calf, ankle, and knee respectively. The nature of pain was dull aching with an intensity of three to five on NRS relieved by rest amongst majority of the Umpires as revealed in our study.

The lower kinetic chain dysfunctions were reported more often in officials presiding over athletic events. Bizzini et al in multiple studies on football referees has emphasized the incidence of injuries and frequency of musculoskeletal complaints related to refereeing, and the need for prevention programs for football referees to be developed, evaluated, and implemented.7, 8,9,10. Many other researchers have also reported high rate of injuires among umpires.11. Momeni et al in their study specifically concluded that lower body care for a refree is of utmost importance because of the injuries happen in the lower kinetic chain similar to the findings in our study.12 There multiple reasons for the low back pain in Umpires. Researchers over the last few decades have proved that individual factors such as age, gender and BMI are important predictive variables.

13,14,15,16. Most of the low back pain can be explained by the prolonged standing in the cricket field as concluded by Nelson-Wong et al in their study on asymptomatic individuals. They found out that transient LBP during prolonged standing in asymptomatic individuals was a predictive factor for future LBP with increased risk factors 17. Sorenson et al established that individuals standing with increased lumbar lordosis is a risk factor for developing LBP during prolonged standing. This fact emphasizes proper posstural awareness for Umpires during the match and also prevention of obesity and the need to remain physically fit.18 Another strategy found by Stewart et al is intermittent trunk flexion to reduce LBP during prolonged standing which can be performed by the Umpires at regular intervals during a match 19.

McCulloch J, in his study concluded that prolonged standing that is standing for more than 8 hours, lead to associated health risks. Of these musculoskeletal low back and feet pain were frequently presented as found similarly in our study. 20 Lumbar lordosis while standing was found by Lord et al to be 50% greater than sitting lordosis. 21 Umpires who are standing in the field throughout the match proceedings could also develop low back pain due to this.

Umpires also reported knee and ankle pain which could be attributed to the findings of Abnormal activity in the back muscles affect the kinetic chain lower down causing musculoskeletal dysfunction in the calf muscles, ankle and knee as reported by Harrington and Loran in their research 22,23

CONCLUSION:

The prevalence of musculoskeletal dysfunction among Umpires is highly significant. The most prevalent pain region was the Low Back owing to prolonged standing postures. Umpires should be placed under closer scrutiny for evaluating various medical, psychological and orthopedic problems on account of their job demands. There is a need to encourage more Females to become Umpires. Prevention programs and pre participation screening schedules should be developed and implemented to create awareness of Musculoskeletal Dysfunction amongst Cricket Umpires.

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